Report on Institutionalizing Undergraduate Research at University of Wisconsin – Stout  
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University of Wisconsin – Stout participated in the Council on Undergraduate Research (CUR) Regional Workshop on Institutionalizing Undergraduate Research at Truman State University in October 2008. The four faculty members who attended the workshop (Richard Tafalla, Steve Deckelman, Bob Zeidel, and Mandy Little) outlined a plan of action to take over the next few years. Since the workshop, UW-Stout has made considerable progress in embedding undergraduate research in the classroom and beyond. Furthermore, the administration, faculty, and students have been resourceful in finding ways to fund these experiences. The campus is now at a crossroads. In order to make further progress, a number of key decisions and initiatives need to be made. The progress, challenges, and suggested next steps will be outlined in this short report.

I met with faculty, administrators charged with overseeing various research efforts, students, and the senior administration including deans, Provost Furst-Bowe, and Chancellor Sorenson over a day and a half (see attached schedule). These sessions provided opportunities to ask about the definition of undergraduate research by different campus constituents, the progress that has been made in institutionalizing undergraduate research, and the barriers that continue to exist in making progress. Dr. Sylvia Tiala provided a list of questions to consider during my visit (see attached letter).

Undergraduate research has many definitions. The definition adopted by the CUR is: “An inquiry or investigation conducted by an undergraduate student that makes an original intellectual or creative contribution to the discipline.” [http://www.cur.org/about.html] A rich discussion of the term “research” and its implications for undergraduate participation is presented in the recently published book Science in Solution by David Lopatto [published by Research Corporation, 2010 – see http://www.rescorp.org/gdresources/downloads/Science_in_Solution_Lopatto.pdf]. The “Creative Original Research Experiences Committee” (CORE) has envisioned a broad definition of undergraduate research (UGR) for the UW Stout campus. During the visit, I asked faculty, administrators, and students to provide their definition of undergraduate research. This query generated the following responses.

- Students learning new material – not from a book or a teacher but using the teacher as a resource.
- Not just reading but doing.
- UGR is question driven, a creation of new knowledge using public knowledge to answer a new question.
- It should have a product that can be shared.
- It is collaborative by nature – between faculty mentor and students and often with teams of individuals.
- It is about dissemination of new knowledge.
- Students helping frame the questions that result in more engaged students.
• Students get a little bit of graduate school. It is an original contribution to science and also brings students into a research community.
• UGR looks different for all disciplines – not sure that this has been defined on the Stout campus.
• Adds depth to creative part, looking for connections between people and projects, it is a value-added experience.
• It is process versus product. It allows for reflection as well as research.
• It includes both research and creative activities.
• It is good education – it must be collaborative with faculty and is active. It produces new knowledge. It is value-added because it creates good teaching and good learning.

As you can read, these definitions encompass the CUR definition and other common definitions. Getting a common understanding of UGR and what it encompasses on the UW-Stout campus is important. CORE recognizes that one definition will be too difficult to generate since the programs on campus are very diverse. However, making sure that everyone on campus understands the basic features of UGR is a major step forward.

The UW-Stout campus has made enormous progress in institutionalizing UGR since the fall of 2008 and the Truman workshop. The following is a list of the accomplishments made in the past few years (or even longer).

• Stout has a rich history of “hands on” experiences for students (and should continue to build on this). Stout was founded to train young men and women in applied fields (industrial arts and home economics). This rich tradition continues as Stout has recently become the Wisconsin system’s polytechnic university.
• CORE group has been formed, endorsed by the Chancellor and Provost, and is growing (now at over 40 faculty members).
• Stout Student Association (SSA) passed a resolution in September 2010 endorsing UGR for all students.
• The administration has created a base of support (funds to support UGR and purchase of materials, support for faculty e.g. system funds for equipment, etc).
• Both the Chancellor and the Provost support UGR which faculty and students greatly appreciate.
• UW-Stout has excellent opportunities for students (e.g. Michael Pichart’s aquatic research or the C-NERVE program in Psychology).
• A new Discovery Center has been created to help connect the campus to businesses to provide innovative-based and knowledge-based solutions for student learning and economic development.
• UW-Stout has recently been awarded funds through the McNair Scholars Program.
• The campus has had a UGR Day for a number of years.
• A student research journal is published annually. The latest edition includes the first paper from the Humanities.
• The SSA provides funding for a student Research Club. Students use these funds to bring speakers to campus, have seminars on graduate school, support student travel to conferences, etc.
• A very strong research office exists that supports faculty grant writing as well as UGR.
• A number of academic programs already incorporate UGR into the curricula (particularly in the sciences). A few of these programs have documented the success of their students (with high placement of students in jobs after graduation as with the food sciences program or in comparison with peers at other institutions using the results of standardized test as with the psychology students participating in C-NERVE).

The main beneficiary of UGR is the student body. A number of studies have been published providing direct evidence that shows the value of providing an UGR experience to students (see, for example, Lopatto). UGR is important to prepare students not only for graduate work but also to enter the workforce directly after graduation. In creating new research opportunities for students both in the classroom and beyond, it is important to include their voice in the decision-making process. CORE as well as the administrators and faculty driving the UGR effort have been responsive to students and their needs. Stout students are bright, hard working, and chose to attend Stout because of the opportunities in applied fields. I found the Stout students to be very open and have a desire to get as much out of their Stout education as they can. Below are comments that students made during the site visit.

• Students want an UGR experience from first through fourth year (and the expectation is that they get an experience as early as possible to provide an opportunity to experience the discipline as practiced by experts).
• Students recognize that engagement with material makes it more meaningful, particularly in the classroom.
• Students want to be more challenged particularly in first few years.
• Students have many external pulls including the need to work to attend UW-Stout. As a consequence, many students commented that more resources are needed to support students doing research. Those resources include providing stipends to students doing UGR beyond the classroom (during the academic year and during the summer) and providing funding for faculty to be research active. (This goes beyond the SSA funding that provides support for undergraduates to staff labs and the library. Students want funds to support research assistants.)
• Student voices need to be heard (by faculty, administration, and SSA). Some students also commented that SSA needs to communicate more with fellow students about their work on UGR. A number of the students that I spoke with were unaware of the recent resolution to endorse UGR experiences for all students.
• There was a general feeling that disseminating information about UGR opportunities to students needs to be improved (through the main web site, first year orientation, advisor providing info, program web sites, etc).

The effect on faculty participating in undergraduate research is less documented. However, many positive effects can occur – faculty are more engaged in teaching courses that include undergraduate research, ideas for new research projects evolve out of UGR, faculty stay current in their disciplines, etc. Some faculty members have even reengaged in scholarship after mentoring an undergraduate research student. Many faculty members across the US are supportive of undergraduate research and
understand the value of this experience for deep learning. However, some faculty members remain skeptical about the sustainability of undergraduate research if issues such as workload including course load and funds for resources are not addressed. Stout faculty members have these same concerns. I found during my conversations that Stout faculty members are very hard working and have a deep concern about providing high quality education to the students. Many want to incorporate UGR into their courses and/or beyond course work. Faculty comments include the following.

- Faculty members are deeply concerned about workload. Undergraduate research is just one more “high impact” practice that has been added to the list of expectations for promotion, tenure, and merit. The faculty members have a strong desire to give Stout students the best education possible and recognize the value that UGR experiences provide to students. A number of faculty members also mentioned that early career faculty have many pressures placed on them – learning the teaching culture at Stout, starting a research program, and immersing themselves in shared governance even in their first year at Stout. A number of comments were made about the potential for burnout for early career faculty and their senior colleagues if workload issues are not addressed.
- A number of faculty commented about the need to sustain funding (and even increase funding) for UGR and faculty research.
- A few faculty members stated that they do not know how to incorporate UGR into their courses. Also, some faculty expressed concern that departmental colleagues would not support their efforts to include UGR in their courses especially for prerequisite courses. Would those resistant faculty find ways to put up barriers or not support colleagues incorporating UGR into the curriculum? Untenured faculty are particularly concerned about repercussions if they revise their courses to include UGR and have senior colleagues who don’t support UGR.
- A number of faculty commented about the need to provide funds so that student stipends can be awarded to students doing UGR in summer (as well as during academic year via work study). Again, these funds are for paying research assistants, not for paying undergraduates to staff teaching labs or the library. Faculty also mentioned about the need to give course credit for these experiences.
- A few faculty members commented about getting program directors on board with UGR (which apparently is not a universal priority among the program directors).
- Some faculty commented about the need to look closely at peer institutions and their efforts in UGR.
- All of the faculty expressed deep appreciation of the support for UGR from the Provost and Chancellor. Faculty in the sciences also mentioned appreciation of the Provost for obtaining funding for instrumentation used in the classroom that often can also be used for undergraduate research experiences.
- A number of faculty members commented on the need to hire new faculty who value UGR and are teacher-scholars.

UW-Stout is now at a crossroad. Many of the efforts to institutionalize UGR so far have taken the will and efforts of a handful of faculty and administrators. To make further progress, the entire campus
will need to be involved. The following are recommendations to help the campus take the next step in making undergraduate research a universal experience for Stout students.

- Invite alumni and potential donors to the next undergraduate research day. This would allow potential donors to observe first hand the great work being done across campus and the incredible value that these experiences provide to Stout students.

- The administration needs to recognize the faculty work on UGR but the faculty also needs to decide priorities. That is, faculty members need to be rewarded for involving undergraduates in research experiences. This can be in many different forms such as counting UGR in course load, providing funding for undergraduate research assistants, etc. (Some of the faculty members and deans mentioned using the same model for assigning course load for UGR as currently being used for faculty members mentoring graduate student research.) At the same time, the faculty will need to make major changes to the tenure and promotion process as well as to the curriculum. If faculty value undergraduate research, a curriculum will need to be created that provides faculty time as well as student credit for UGR. Does content-rich matter or does a variety of high impact practices that deepen student learning matter more? An excellent example of a potentially very successful program is the new neuroscience program that was designed around UGR and uses a developmental approach to research. Teams of students – from first year to seniors – are engaged in research projects. Students learn from each other and from the faculty member. Provost Furst-Bowe indicated that funds via the “curriculum incubation center” could be set aside for revision of program curricula to include UGR. Changing individual program curricula is important, but the UW-Stout campus should also consider how the general education program helps or hinders institutionalizing UGR. Much of the discussion around the general education program during the site visit focused on the shortfalls of the program rather than its strengths, especially in expanding UGR.

- In addition to changes in the curricula, the tenure and promotion criteria need to include faculty sponsorship of UGR. New faculty need time to develop as teachers and scholars and also incorporate UGR into their work as teacher-scholars. These new colleagues also need to slowly integrate into the shared governance system with the expectation that once they receive tenure then they need to take more responsibility in the governance process. Tenured faculty members who do UGR also need to be rewarded in the promotion and merit process. This also means that tenured faculty need to share in the governance of the university and not place all the responsibilities on their early career colleagues. The deans and Provost need to help support changes that enable both early career as well as tenured faculty doing UGR.

- Both faculty and students agreed that more funding was needed in order to sustaining UGR – funds for more faculty scholarship and more student support.

- The sciences have been successful in providing UGR experiences for their majors and efforts are increasing in the humanities and the arts. Those experiences need to increase. A new CUR publication Reading, Writing, and Research: Undergraduate Students as Scholars in Literary Studies by Laura L. Behling has wonderful examples of “what works” in the humanities. This publication is available on the CUR website.
• Can the deans help with getting all program directors to support institutionalizing UGR? Are there ways that the deans can provide incentives to programs that incorporate UGR more directly into the curriculum?

• It would be helpful to look closely at peer institutions and determine the extent of UGR on those campuses and “what works” on those campuses. Can Stout adapt or adopt any of those practices that work? Possible campuses to review include UW Eau Claire, UW LaCrosse, Cal Poly San Luis Obispo, Ferris State, etc. (The Spring edition of Peer Review published by AAC&U includes an article from a group of faculty members at California Polytechnic State University incorporating UGR in courses for pre-service and early career teachers. There are a number of other articles that may interest both faculty and staff in that same issue of Peer Review which is focused on UGR.)

• The Provost - working with deans and program directors - needs to determine hiring criteria for new faculty position such that candidates who value UGR and have the potential to be stellar teacher-scholars will be hired.

• Careful assessment of the positive impact of increasing UGR in the classroom and beyond on students and on faculty needs to be made. The institutional research and assessment office on campus should be able to help in documenting URG successes.

Many other campuses are struggling with the same issues of institutionalizing UGR as the UW-Stout campus. The good news is that Stout has made real progress over the last few years. I encourage faculty, administrators, and students to continue to engage in the conversation about incorporating more UGR into the Stout experience with colleagues on and off campus. Attend AAC&U meetings – both the annual meeting as well as special conferences on UGR. Have faculty members serve as CUR representatives and continue to be an institutional member of CUR. Have faculty members engage in the conversation about UGR with their disciplinary societies. A number of disciplinary societies recognize the value of UGR and are developing materials that describe ways to support academic programs interested in increasing UGR with new resources or with existing resources. UW-Stout can become a national model for UGR but it will take some major decisions and changes regarding the curriculum and faculty support.

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